Construction Techniques Comparison

	(1) note	(2)	(3)	Example
1	high quality material	continuous structure	non arch	General technique for pillar, beam, crossbeam, floor,
2	high quality material	continuous structure	arch	General technique for RC arch
3	high quality material	discrete structure	non arch	General technique for heaping stones and blocks
4	high quality material	discrete structure	arch	Traditional stone arch is not recognized as general technique in terms of economy. Economy and endurance will be pursued by the technique according to the present invention
5	low quality material	continuous structure	non arch	Unstable (not usable)
6	low quality material	continuous structure	arch	Used for the ceiling of a kiln for traditional charcoal making. Not recognized as a modern technique. Rational design and practice can be realized by the technique according to the present invention
7	low quality material	discrete structure	non arch	general technique for soil fort and mound
8	low quality material	discrete structure	arch	new technique

Fig. 1

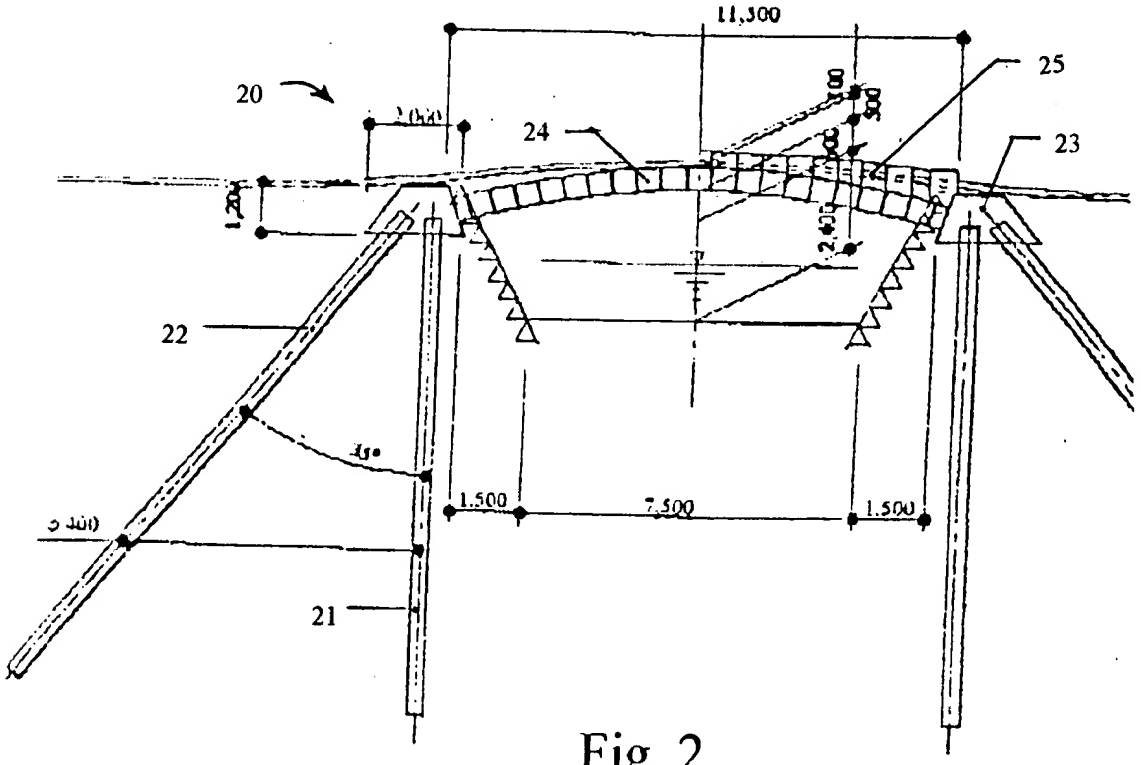


Fig. 2

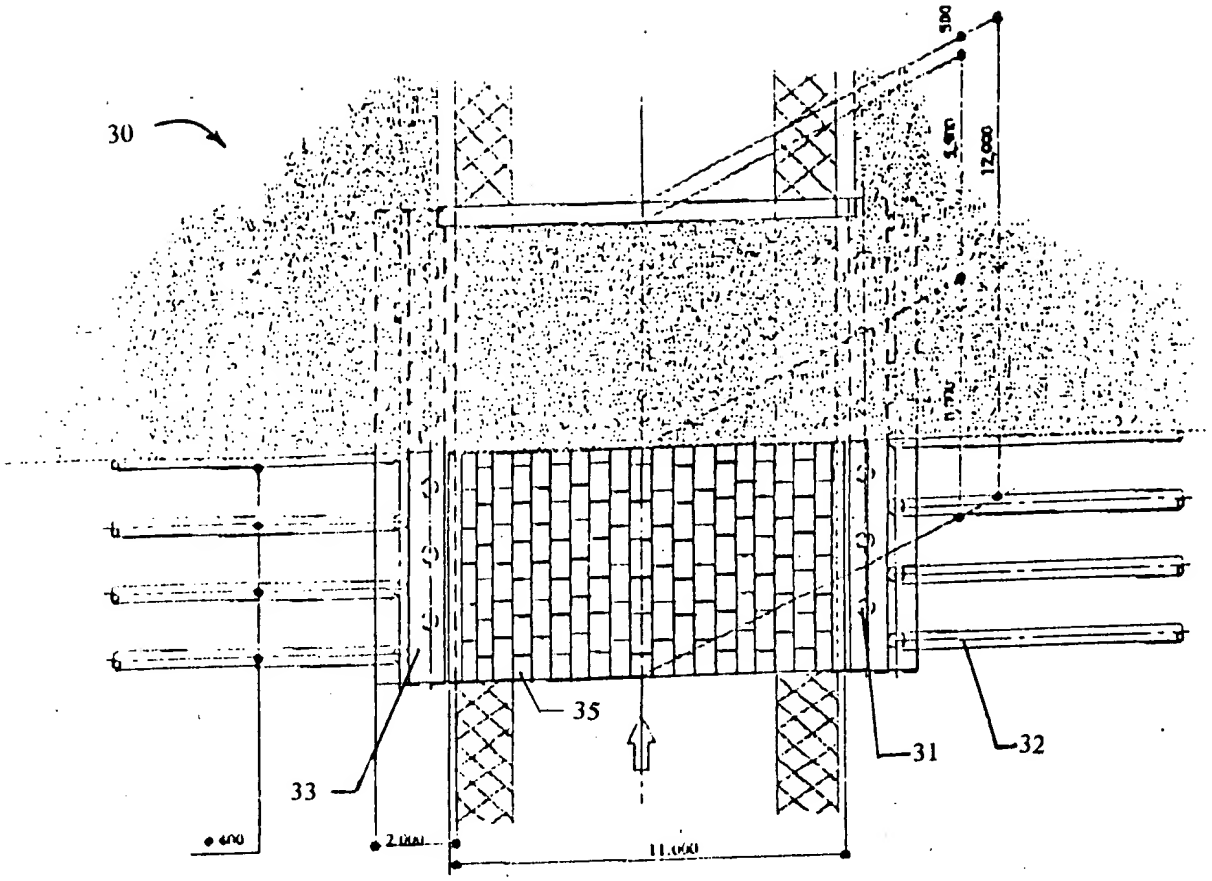

30
500
5,500
12,000
35
31
32
33
400
2,000
11,000

Fig. 3

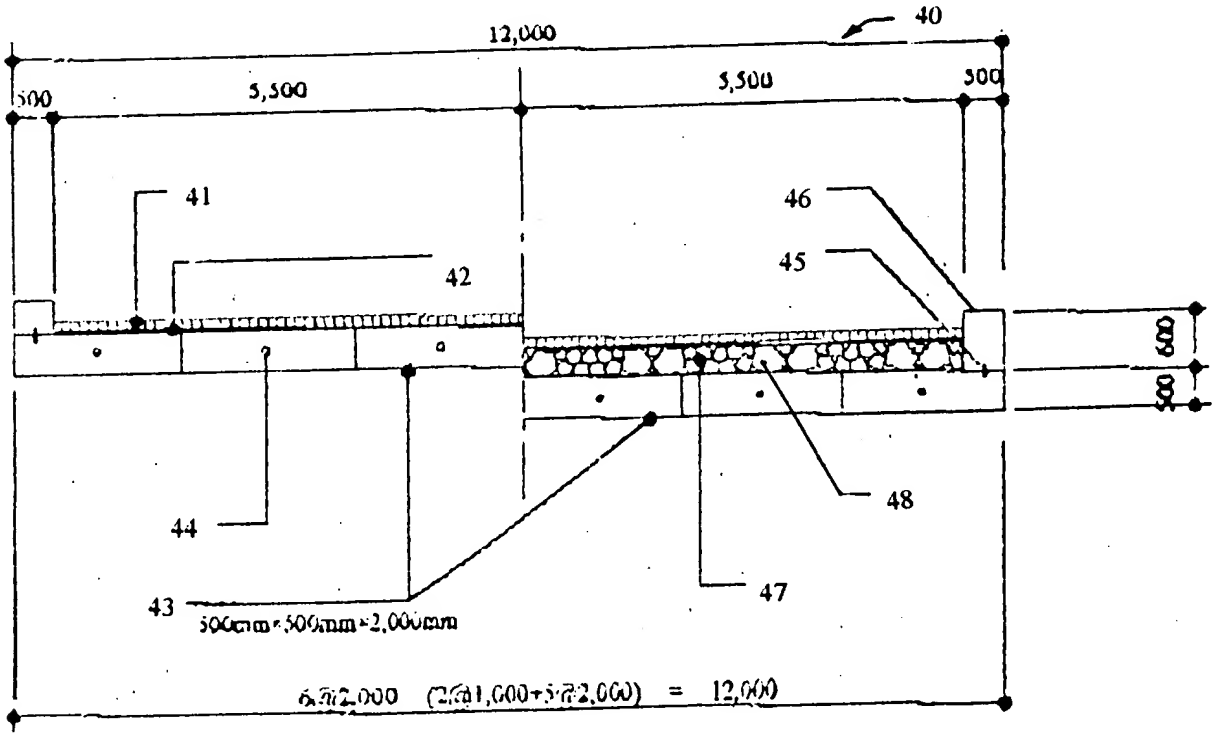

40
12,000
500
5,500
5,500
500
41
42
46
45
600
500
44
48
43
500mm×500mm×2,000mm
47
6本@2,000 (2@1,000+5@2,000) = 12,000

Fig. 4

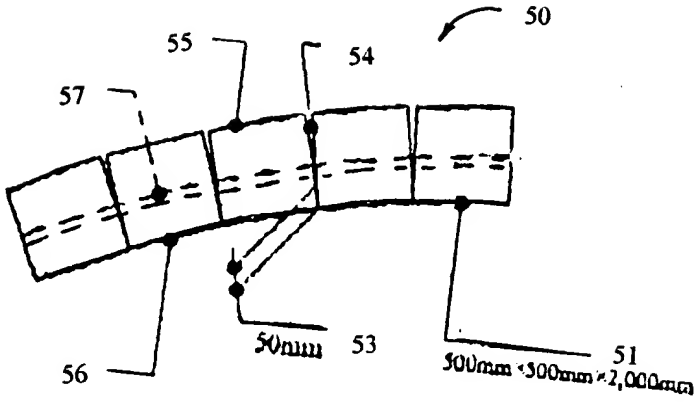
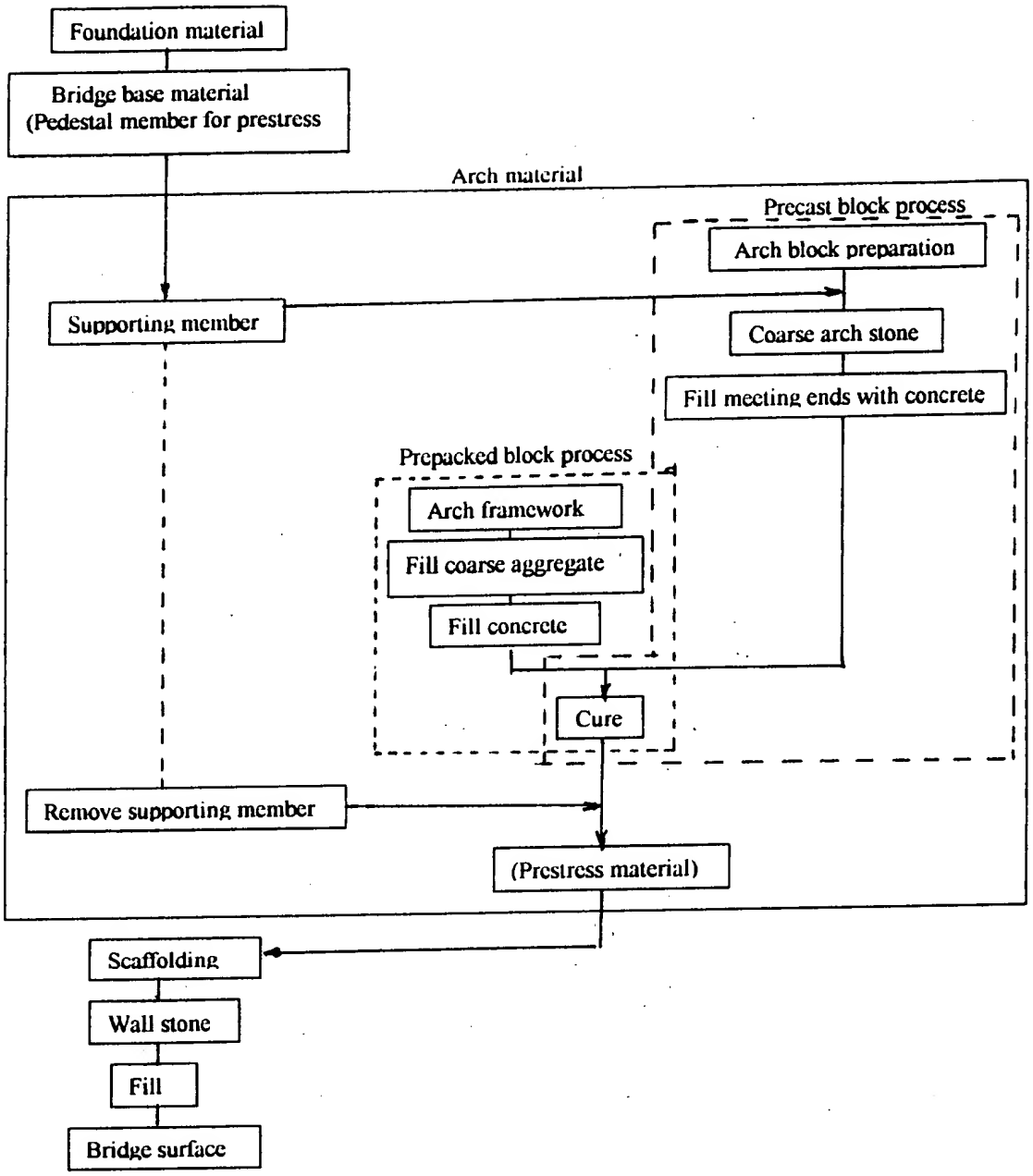


Fig. 5

Design condition

Bridge Type		Road bridge (A live load)
Bridge length		11,500m
Bridge width		12,000m (useful width 11,000m)
Style of upper part		constraint discrete material arch structure (stone arch)
Design model		Individual elements analysis (normally, at live load, on earthquake in the bridge axis direction) and 3-D shell model (on earthquake in the direction orthogonal to the bridge axis direction)
Style of lower part and foundation		Pit foundation (oblique pit 35°)
Shake		Dynamic analysis
Material used	Arch	See the separate table.
	Prestress	To give the ability to restore separated meeting ends on abnormal load.
	Pavement	paving (curved stone paving)
	Pit	Pit φ400

Fig. 6



Construction job flowchart

Fig. 7

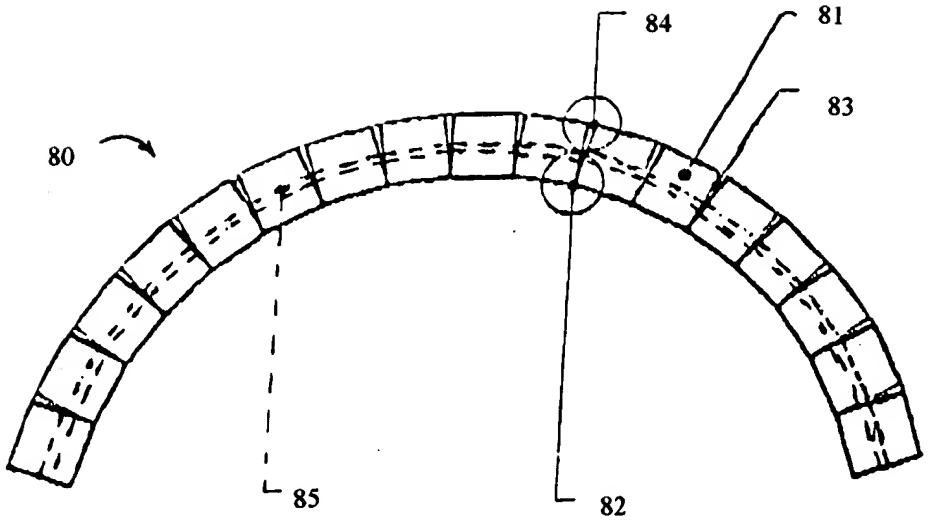


Fig. 8

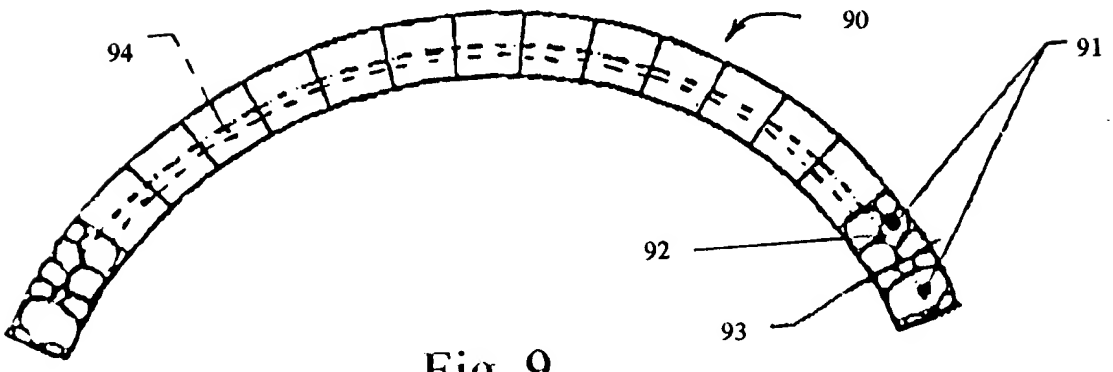


Fig. 9